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**CLAIMS**

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**[Claim(s)]**

[Claim 1] While it is the portable telephone which has a body of telephone, and the actuation key section which consists of two or more keys for telephone actuation with which this body of telephone was equipped and two or more keys of said actuation key section consist of a translucency member The portable telephone with a lighting function characterized by having two or more light-emitting parts arranged in the pars-basilaris-ossis-occipitalis side of two or more of these keys, respectively, and for two or more of these light-emitting parts emitting light according to coincidence or an individual according to telephone actuation, and turning on or blinking two or more keys of said actuation key section.

[Claim 2] The portable telephone with a lighting function according to claim 1 with which said two or more light-emitting parts of each consist of a multicolor light-emitting part which can emit light in two or more different colors.

[Claim 3] The portable telephone with a lighting function according to claim 1 or 2 with which said two or more light-emitting parts emit light according to an individual according to the scale of the melody sound of said information means when said body of telephone is equipped with an information means by which a melody sound reports the arrival of a signal.

[Claim 4] The portable telephone with a lighting function according to claim 2 or 3 with which said two or more light-emitting parts emit light by different color according to the class of melody sound of said information means when said body of telephone is equipped with an information means by which a melody sound reports the arrival of a signal.

[Claim 5] The portable telephone with a lighting function according to claim 2, 3, or 4 with which said two or more light-emitting parts emit light by different color according to the scale of the melody sound of said information means when said body of telephone is equipped with an information means by which a melody sound reports the arrival of a signal.

[Claim 6] The portable telephone with a lighting function according to claim 1, 2, 3, 4, or 5 with which said two or more light-emitting parts emit light according to an individual according to the arrival-of-the-mail number of cases of the mail in an alphabetic character when said body of telephone receives the mail in an alphabetic character.

[Claim 7] The portable telephone with a lighting function according to claim 2, 3, 4, 5, or 6 which emits light by the color from which said two or more light-emitting parts differ according to the arrival-of-the-mail number of cases of the mail in an alphabetic character when said body of telephone receives the mail in an alphabetic character.

[Claim 8] The portable telephone with a lighting function according to claim 6 or 7 with which the actuation key section of the same number as the arrival-of-the-mail number of cases of the mail in an alphabetic character emits light when said body of telephone receives the mail in an alphabetic character.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

**[Field of the Invention]** This invention relates to the portable telephone with a lighting function equipped with a luminescence means to switch on the light and to blink the actuation key section of a body by various different modes and colors especially according to actuation of telephone, about the portable telephone used as pocket mold communication terminals, such as a cellular phone and PHS.

**[0002]**

**[Description of the Prior Art]** Generally, in portable telephones, such as a cellular phone and PHS, if a signal is received from the exterior, while carrying out [ sound / which tells arrival of the mail / melody ] singing, the arrival-of-the-mail display which tells the display of the body of telephone about arrival of the mail is displayed. Moreover, in the portable telephone which can transmit and receive mail in an alphabetic character, also when the mail in an alphabetic character is received from the exterior, the arrival-of-the-mail display which tells the arrival of the mail in an alphabetic character is displayed on a display.

**[0003]** And recently, the portable telephone which the light source of the back light of a display etc. lights up to such an arrival-of-the-mail display and coincidence, and a display, a predetermined lamp, etc. light up to them, and reports the arrival from the outside to them by lighting of light is also proposed. As a portable telephone equipped with the function to make such a display etc. turn on and to tell the arrival of a signal, there are a "radiotelephone" of JP,6-37715,A and "telephone equipment" of JP,11-136319,A.

**[0004]**

**[Problem(s) to be Solved by the Invention]** By the way, in the latest portable telephone, although there is a request of the miniaturization of the body of telephone and expansion-izing of display area, in order to secure the area of a display greatly, it is necessary to reduce other parts, especially the key stroke sections of the body of telephone as much as possible except for necessary minimum keys, such as a numerical keypad. On the other hand, in order for multi-functionalization to progress and for the latest portable telephone to perform multifunctional actuation, it is difficult to reduce the number and class of actuation key.

**[0005]** For this reason, in the portable telephone by which the conventional proposal has been made, it was not able to respond to the both sides of a different request called the miniaturization of the body of telephone which is advancing quickly in recent years, and expansion-izing of display area and multi-functionalization of a telephone function with the portable telephone equipped with the lighting function to tell arrival of the mail by lighting of a display.

**[0006]** By being proposed in order that this invention may solve the problem which such a Prior art has, switching on the light and blinking the actuation key section of a body by various different modes and colors, according to telephone actuation of a portable telephone The actuation key section is utilizable as the information means which is not in the former, and a display means, and it aims at offer of the portable telephone with a lighting function which can respond to multi-functionalization of a telephone

function, without barring the miniaturization of the body of telephone, and expansion-ization of display area.

[0007] In order to attain the above-mentioned purpose, the portable telephone with a lighting function of this invention according to claim 1 While it is the portable telephone which has a body of telephone, and the actuation key section which consists of two or more keys for telephone actuation with which this body of telephone was equipped and two or more keys of said actuation key section consist of a translucency member two or more light-emitting parts arranged in the pars-basilaris-ossis-occipitalis side of two or more of these keys, respectively -- having -- two or more of these light-emitting parts -- telephone actuation -- responding -- coincidence -- or it has considered as the configuration which light is emitted [ configuration ] according to an individual, and turns on or blinks two or more keys of said actuation key section.

[0008] Especially, in claim 2, it has considered as the configuration which said two or more light-emitting parts of each become from the multicolor light-emitting part which can emit light in two or more different colors.

[0009] And by claim 3, when said body of telephone is equipped with an information means by which a melody sound reports the arrival of a signal, specifically, said two or more light-emitting parts are considered as the configuration which emits light according to an individual according to the scale of the melody sound of said information means.

[0010] Moreover, in claim 4, said two or more light-emitting parts are considered as the configuration which emits light by different color according to the class of melody sound of said information means.

[0011] Furthermore, in claim 5, said two or more light-emitting parts are considered as the configuration which emits light by different color according to the scale of the melody sound of said information means.

[0012] Since according to the portable telephone with a lighting function which consists of such a configuration a light-emitting part can be made to be able to emit light according to the melody sound which an information means emits and the actuation key section can be turned on or blinked, it enables the scale of a melody sound, and eye music to grasp clearly in a lighting mode or a lighting color by checking the lighting mode of the actuation key section. Moreover, it also becomes possible by making a melody sound and an arrival-of-the-mail partner correspond beforehand, and setting up to distinguish who has telephoned by the lighting color and lighting mode of the actuation key section.

[0013] Thus, according to the portable telephone with a lighting function of this invention, the information function and display function which utilized the actuation key section which was not in the conventional portable telephone are realizable, and it can respond to multi-functionalization of a telephone function, without barring the miniaturization of the body of telephone, and expansion-ization of display area.

[0014] On the other hand, in claim 6, when said body of telephone receives the mail in an alphabetic character, it has considered as the configuration to which said two or more light-emitting parts emit light according to an individual according to the arrival-of-the-mail number of cases of the mail in an alphabetic character.

[0015] Moreover, in claim 7, it has considered as the configuration which emits light by the color from which said two or more light-emitting parts differ according to the arrival-of-the-mail number of cases of the mail in an alphabetic character.

[0016] Furthermore, in claim 8, when said body of telephone receives the mail in an alphabetic character, it has considered as the configuration in which the actuation key section of the same number as the arrival-of-the-mail number of cases of the mail in an alphabetic character emits light.

[0017] Since the arrival-of-the-mail number of cases of e-mail can be checked at a glance by seeing the actuation key section turned on by luminescence of a light-emitting part according to the portable telephone with a lighting function of this invention which consists of such a configuration, it becomes possible to recognize easily and correctly the arrival-of-the-mail number of cases of e-mail even in a dark place. And it becomes possible to realize operability of an intelligible portable telephone that it is easier to use by enabling it to display the contents of e-mail only by carrying out the depression of the

turned-on key. Without being able to realize by this the display function and actuation function which are not in the conventional portable telephone, and enlarging and complicating the actuation key section, it can respond to multi-functionalization of a telephone function, and operability and convenience can also be raised.

[0018]

[Embodiment of the Invention] Hereafter, the operation gestalt of the portable telephone with a lighting function of this invention is explained, referring to a drawing.

The [first operation gestalt] With reference to drawing 1 and drawing 2, the first operation gestalt of the portable telephone with a lighting function of this invention is explained first. Drawing 1 is the appearance block diagram showing the portable telephone with a lighting function concerning this operation gestalt, and, similarly drawing 2 is a block diagram.

[0019] As shown in drawing 1, the portable telephone with a lighting function concerning this operation gestalt is telephone which equipped the body 1 of telephone with the antenna 2, the display 3, and the actuation key section 4 grade, and has the almost same composition as the usual portable telephone. A display 3 is a display means to perform the telephone number inputted in the actuation key section 4, various kinds of functional displays, the reception display of a signal, the display of the mail in an alphabetic character, etc., and is constituted by the liquid crystal display means like the usual portable telephone.

[0020] As shown in drawing 1, the actuation key section 4 consists of two or more keys, such as a transceiver key of number-to-be-dialed key 4a or a signal, clear back key 4b, e-mail key 4c, and various kinds of setting keys, and serves as an alter operation means against the control section 7 within the body of telephone mentioned later. And with the portable telephone of this operation gestalt, while this actuation key section 4 consists of a translucency member, where it was located in the pars-basilaris-occipitalis side of two or more keys of each and these actuation key section 4 and the corresponding light-emitting part 5 are built in the body of telephone, it has arranged. In addition, if the actuation key section 4 is a member which has light transmission nature, it may be the thing of what kind of the quality of the material, for example, can be formed with synthetic-resin ingredients, such as transparency and translucence.

[0021] As long as a light-emitting part 5 is the means which can emit light, it may be what kind of thing, and light emitting diode, an EL element, etc. can be used for it, and it usually constitutes them from this operation gestalt with the multicolor light-emitting part which consists two or more of these light-emitting parts of each of multiple color LED which can emit light in two or more different colors. and control of the control section 7 within the body of telephone which two or more multicolor light-emitting parts 5 mention later -- telephone actuation -- responding -- the voice of arbitration -- light is emitted more like, and two or more keys of the actuation key section 4 light up or blink according to telephone actuation.

[0022] Here, when the light-emitting part 5 of this operation gestalt is driven, it can also be supposed that fixed time amount luminescence has been carried out, and it can repeat predetermined time luminescence and quenching. Thereby, the actuation key section 4 becomes possible [ choosing and displaying the mode from which lighting or flashing differs on arbitration ]. In addition, it is desirable to consider lighting and flashing of a light-emitting part 5 as selection and a switchable configuration also from a viewpoint of consumed-electric-current reduction of a portable telephone at arbitration.

[0023] Inside the body 1 of telephone, as shown in drawing 2, it had the wireless circuit section 6 and the control section 7 which performs control of the whole telephone, and has connected with an antenna 2, a display 3, the actuation key section 4, and the multicolor light-emitting part 5. Earphone 8a and telephone transmitter 8b are connected to the wireless circuit section 6, and message actuation can be performed now in it.

[0024] Moreover, the melody sound generating section 9 is connected, if a signal is received by the control section 7 from the exterior through an antenna 2 and the wireless circuit section 6, the melody sound generating section 9 will generate a melody sound in it by control of a control section 7, and the arrival of a signal will be reported to it. In addition, two or more classes are prepared beforehand, by

setting actuation to a control section 7, the arrival-of-the-mail information sound of arbitration is set up, and the arrival-of-the-mail information sound emitted from the melody sound generating section 9 can be changed now.

[0025] And the luminescence mode of the multicolor light-emitting part 5 is controlled by the control section 7 within this body of telephone, and the multicolor light-emitting part 5 emits light according to various actuation of telephone. Here, the control mode of the multicolor light-emitting part 5 by the control section 7 can be set as the mode of arbitration by the alter operation from the actuation key section 4. When the body of telephone receives a signal from the exterior and the melody sound which reports the arrival of a signal is emitted from the melody sound generating section 9, it is made to make the multicolor light-emitting part 5 specifically have emitted light with this operation gestalt according to this melody sound.

[0026] For example, to two or more multicolor light-emitting part 5 and each corresponding key, as shown in drawing 1, the scale is assigned beforehand (in drawing 1). "1" of number-to-be-dialed key 4a -- "DO" and "2" -- "RE" and "3" -- "MI" and "4" -- "FA" and "5" -- "SO" and "6" -- "RA" and "7" -- "Si" and "8" -- "DO" -- The multicolor light-emitting part 5 which corresponds according to the scale of the melody sound which the melody sound generating section 9 emits can be made to emit light according to an individual.

[0027] Moreover, when the melody sound of arbitration can be chosen and set up out of two or more melody sounds to the melody sound generating section 9, the multicolor light-emitting part 5 can also be made to emit light by different color according to the class of melody sound. For example, in the case of a certain melody sound, it is red, and it can be set up so that the luminescent color may be changed for every class of melody sound as it is green in the case of a certain melody sound. In this case, all of two or more multicolor light-emitting parts 5 can also be made to be able to emit light to coincidence, and only the specific multicolor light-emitting part 5 can also be made to emit light according to an individual.

[0028] Furthermore, it can also set up so that light may be emitted by the color from which the multicolor light-emitting part 5 differs according to the scale of the melody sound emitted from the melody sound generating section 9. For example, when a scale is "DO", it can also set up so that red and a color which is different according to a scale like [ in "RE" ] green may be made to emit light.

[0029] according to the portable telephone with a lighting function concerning these above operation gestalten -- the voice of arbitration -- since the multicolor light-emitting part 5 emits light according to the melody sound which the melody sound generating section 9 emits and the actuation key section 4 lights up with the multicolor light-emitting part 5 set up more like (or flashing), the scale of a melody sound and eye music can grasp clearly in a lighting mode or a lighting color by checking the lighting mode of the actuation key section 4.

[0030] Moreover, it also becomes possible by making a melody sound and an arrival-of-the-mail partner correspond beforehand, and setting up to distinguish who has telephoned by the lighting color and lighting mode of the actuation key section 4. The information function and display function which utilized by this the actuation key section 4 which was not in the conventional portable telephone are realizable, and it can respond to multi-functionalization of a telephone function, without barring the miniaturization of the body of telephone, and expansion-ization of display area.

[0031] With reference to the [second operation gestalt], next drawing 3, the second operation gestalt of the portable telephone with a lighting function of this invention is explained. Drawing 3 is a flow chart Fig. explaining actuation of the portable telephone with a lighting function concerning the second operation gestalt of this invention.

[0032] The portable telephone with a lighting function of this operation gestalt has become being the same as that of the first operation gestalt mentioned above about the concrete configuration, and the control mode of the multicolor light-emitting part 5 by the control section 7 is changed with the case of the first operation gestalt with this operation gestalt. Therefore, the same sign as the first operation gestalt is attached, and the component of a portable telephone is explained.

[0033] The body 1 of telephone serves as ability ready for receiving in the mail in an alphabetic

character, and it is made to make the multicolor light-emitting part 5 specifically have emitted light with this operation gestalt according to the arrival-of-the-mail number of cases of e-mail which received through an antenna 2 and the wireless circuit section 6 from the exterior. That is, it has set up to the control section 7 so that the multicolor light-emitting part 5 corresponding to the figure number key which shows the arrival-of-the-mail number of cases may emit light according to an individual according to the arrival-of-the-mail number of cases of the mail in the alphabetic character of the body 1 of telephone. Thereby, when the arrival-of-the-mail number of cases of e-mail is "one affair", "2" emits light and "1" of number-to-be-dialed key 4a comes to light up, when the arrival-of-the-mail number of cases of e-mail is "two affairs."

[0034] Moreover, with this operation gestalt, the control section 7 is considered as the configuration in which the contents of the mail which received a message are displayed on a display 3 by carrying out the depression of the number-to-be-dialed key 4a turned on by e-mail arrival. Thereby, it becomes possible to display the contents of e-mail by turned-on number-to-be-dialed key 4a instead of e-mail key 4c shown in drawing 1. Since it is necessary to use number-to-be-dialed key 4a in the condition that received a message and the number key turned on e-mail when telephoning outside, furthermore, in that case Lighting of number-to-be-dialed key 4a which displays e-mail arrival can be canceled by setting up clear back key 4b shown in drawing 1 as a lighting discharge key as a lighting discharge key, and carrying out the depression of this clear back key 4b.

[0035] Hereafter, concrete operating procedure is explained along with drawing 3. First, if the mail in the alphabetic character of two affairs receives a message on the body 1 of telephone (step 1), the corresponding multicolor light-emitting part 5 will emit light, and "2" of number-to-be-dialed key 4a will light up (step 2). [ of the actuation key section 4 ]

[0036] And in displaying the contents of the mail which received a message, it carries out the depression of (step 3) and the number-to-be-dialed key 4a of turned-on "2" (step 4). Then, the contents of mail of one affair are displayed on the display 3 of the body 1 of telephone among in two affairs. Then, since the number of cases of arrival-of-the-mail mail becomes "one affair", the corresponding multicolor light-emitting part 5 emits light, and "1" of number-to-be-dialed key 4a lights up (step 5).

[0037] Similarly, in displaying the remaining contents of e-mail of one affair, it carries out the depression of (step 6) and the number-to-be-dialed key 4a of turned-on "1" (step 7). Thereby, the remaining contents of e-mail of one affair are displayed, and lighting of number-to-be-dialed key 4a goes out (step 8).

[0038] On the other hand, in order to telephone a partner before displaying the contents of e-mail in step 3 or step 6 with an e-mail arrival condition, when call origination is needed, lighting of number-to-be-dialed key 4a is canceled by carrying out the depression of the clear back key 4b as (step 9 or step 10), and a lighting discharge key. This will be in the condition which can input the usual number to be dialed.

[0039] As mentioned above, since number-to-be-dialed key 4a which shows the arrival of e-mail by luminescence of the multicolor light-emitting part 5 lights up according to the portable telephone with a lighting function concerning this operation gestalt, the arrival-of-the-mail number of cases of e-mail can be checked at a glance only by seeing the turned-on key, and it becomes possible to recognize easily and correctly the arrival-of-the-mail number of cases of e-mail even in a dark place. Moreover, since the contents of e-mail can be displayed only by carrying out the depression of the turned-on key, the operability of an intelligible portable telephone is [ that it is easier to use ] realizable.

[0040] In addition, the multicolor light-emitting part 5 besides in the case of making the applicable figure of the above number-to-be-dialed key 4a turn on can be made to emit light by different color according to the arrival-of-the-mail number of cases of e-mail as a mode which displays the arrival-of-the-mail number of cases of e-mail. For example, when the arrival-of-the-mail number of cases of e-mail is "one affair", in the case of "red" and "two affairs", it is also possible to set up as "green". Also by this, the arrival-of-the-mail number of cases of e-mail can be checked at a glance by seeing the actuation key section 4.

[0041] Thus, in the portable telephone with a lighting function of this operation gestalt, without

enlarging and complicating the actuation key section, the display function which did not exist in the conventional portable telephone can be realized, and it becomes possible to correspond to multi-functionalization of a telephone function.

[0042] in addition, the portable telephone with a lighting function of this invention is not limited only to the operation gestalt mentioned above, and comes out not to mention various modification implementation being possible in the range of the summary of this invention. For example, it is also possible to display not only the arrival-of-the-mail number of cases of e-mail but the number of cases with arrival of the mail, the answering machine number of cases, etc. by making a corresponding light-emitting part emit light, and making the number-to-be-dialed key of arbitration turn on.

[0043]

[Effect of the Invention] As explained above, according to the portable telephone with a lighting function of this invention, the actuation key section is utilizable as the information means which is not in the former, and a display means by switching on the light and blinking the actuation key section of a body by various different modes and colors, according to telephone actuation of a portable telephone. Thereby, without barring the miniaturization of the body of telephone, and expansion-ization of display area, it becomes possible to correspond to multi-functionalization of a telephone function, and can fully respond also to the various needs to a portable telephone in recent years.

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**TECHNICAL FIELD**

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[Field of the Invention] This invention relates to the portable telephone with a lighting function equipped with a luminescence means to switch on the light and to blink the actuation key section of a body by various different modes and colors especially according to actuation of telephone, about the portable telephone used as pocket mold communication terminals, such as a cellular phone and PHS.

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[Translation done.]

**JAPANESE** [JP,2001-217904,A]

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INVENTION TECHNICAL PROBLEM DESCRIPTION OF DRAWINGS DRAWINGS

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**JAPANESE** [JP,2001-217904,A]

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